

REMARKS

Claims 1-43 were presented for examination. In an Office action dated February 20, 2007, all claims were rejected. Claim 1 is amended herein to more distinctly claim Applicants' invention. These changes are believed not to introduce new matter, and their entry is respectfully requested. In making these amendments, Applicants do not concede that the subject matter of the prior claims was in fact disclosed or taught by the cited prior art. Rather, Applicants reserve the right to pursue such protection at a later point in time in this or another application.

Applicants thank the Examiner for examination of the claims pending in this application and address the Examiner's comments below. Based on the above Amendment and following Remarks, Applicants respectfully request that the Examiner reconsider all outstanding rejections and withdraw them.

Substance of the Interview

Applicants thank the Examiner and the Examiner's Supervisor for their time in conducting a telephone interview on June 21, 2007. During the telephone interview, Applicant, Applicants' attorney, the Examiner, and the Examiner's Supervisor discussed the differences between the claimed invention and the cited art. Applicant pointed out that the system of Shimizu is a fixed focal length lens system that is incapable of maintaining a focused image over the display surface disclosed in Nicolas. The Examiner agreed that if a limitation specifying that the entire image field is in focus be included in the claim, the amended claim would overcome the current combination of Shimizu and Nicolas. The Applicants have taken the Examiner's suggestions into account while preparing the amendments presented herein.

Response to Rejections Under 35 USC 103(a)

The Examiner rejected claims 1-6, 8-10, 17, 19 and 25 under 35 USC § 103(a) as allegedly being unpatentable in view of Nicolas (USP 4,859,053) and Shimizu (USP 3,737,214). This rejection is traversed.

Claim 1 has been amended to now recite “a projection system for projecting an intermediate image at an object field onto a continuous image field on an interior of the display surface, wherein the projection of the intermediate image on the continuous image field is substantially in focus on the interior of the display surface, and wherein a ratio of a longest image distance to a shortest image distance is at least 1.75, and an image distance at an apex image point is longer than an image distance at a full field image point.” This claim language includes four elements: (1) the projection system must project an intermediate image onto a continuous image field; (2) the projection of the intermediate image must be substantially in focus on the interior of the display surface; (3) the ratio of the longest image distance to a shortest image distance must be at least 1.75; and (4) the image distance at an apex image point must be longer than the image distance at a full field image point. Thus, the image distance changes across the image field to maintain the full image substantially in focus. This feature is beneficial for projecting high quality images across the three-dimensional convex display surface.

Nicolas fails to disclose or suggest at least element (3) above. Nicolas discloses a projection system for projecting onto a hemisphere portion of a spherical screen. See Abstract and Fig. 1. However, Nicolas does not disclose that the ratio of a longest image distance to a shortest image distance is at least 1.75, as recited in claim 1.

In the Office action dated February 20, 2007, the Examiner suggested that the deficiencies of Nicolas are remedied by the disclosure of Shimizu. Shimizu discloses a wide angle fisheye lens, but the disclosed lens systems have a single focal length (examples given in col. 3, ln. 51 and col. 4, ln. 2 and ln. 21). Applying the lens of Shimizu to the system of Nicolas in an attempt to meet element (3) above would result in a system that does not satisfy at least element (2) above. In other words, the lens of Shimizu applied to the system in Nicolas would result in an image that was substantially out of focus at least in parts on the interior of the spherical screen 5.

Applicants respectfully submit that for at least these reasons claim 1 is patentable over Nicolas and Shimizu, both alone and in combination. As claims 2-6, 8-10, 17, 19 and 25 depend either directly or indirectly from the patentable independent claim 1 discussed above, all arguments advanced with respect to claim 1 are incorporated so as to apply to these dependent claims as well. In addition, claims 2-6, 8-10, 17, 19 and 25 recite other patentable features which further distinguish them from the prior art of record. Applicants submit that dependent claims 2-6, 8-10, 17, 19 and 25 are patentable over the prior art of record by reason of their dependency, in addition to the further patentable limitations recited therein. Therefore, Applicants respectfully request that Examiner reconsider this rejection, and withdraw it.

Claims 7, 11-16, 18, 20-24, 26-43 were rejected under 35 USC § 103(a) as allegedly being unpatentable over Nicolas and Shimizu in combination with Young (USP 6,698,900), Colucci et al. (USP 6,880,939), Idaszak et al. (US Patent No. 6,530,667), Jaulmes (US Patent No. 4,464,029), Courchesne (US Patent No. 6,905,218), and/or Ikeda et al. (US 6,560,041). These rejections are traversed.

None of the cited references disclose or suggest projecting an intermediate image at an object field onto a continuous image field on an interior of the display surface, wherein the projection of the intermediate image on the continuous image field is substantially in focus on the interior of the display surface, and wherein a ratio of a longest image distance to a shortest image distance is at least 1.75, and an image distance at an apex image point is longer than an image distance at a full field image point. Therefore, Applicants submit that claims 7, 11-16, 18, 20-24, 26-43 are patentable over the cited reference.

Closing

In sum, Applicants respectfully submit that all claims now pending are patentable over the cited references for at least the reasons given above, while not necessarily conceding any contention not specifically addressed. Applicants request reconsideration of the basis for the rejections of these claims and request allowance of them.

If the Examiner believes that for any reason direct contact with Applicants' attorney would help advance the prosecution of this case, the Examiner is invited to telephone the undersigned at the number given below.

Respectfully submitted,
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